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1                   RECORD OF ORAL HEARING  
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3                   UNITED STATES PATENT AND TRADEMARK OFFICE  
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6                   BEFORE THE BOARD OF PATENT APPEALS  
7                   AND INTERFERENCES  
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10                  *Ex parte* KEITH C. HONG, HUSNU M. KALKANOGLU,  
11                   and MING L. SHIAO  
12

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14                  Appeal 2009-005841  
15                  Application 10/600,847  
16                  Technology Center 1700  
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18                  Oral Hearing Held: Thursday, September 17, 2009  
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23                  Before CHUNG K. PAK, PETER F. KRATZ and  
24                  MARK NAGUMO, *Administrative Patent Judges*  
25

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28                  ON BEHALF OF THE APPELLANTS:  
29

30                  ALEX R. SLUZAS, PH.D.  
31                  Two Thousand Market Street  
32                  Suite 2900  
33                  Philadelphia, PA 19103  
34

Appeal 2009-005841  
Application 10/600,847

1           The above-entitled matter came on for hearing on Thursday,  
2 September 17, 2009, commencing at 10:14 a.m., at the U.S. Patent and  
3 Trademark Office, 600 Dulany Street, 9th Floor, Hearing Room A,  
4 Alexandria, Virginia, before Leanne M. Krivonak, Notary Public.

5 MR. SLUZAS: Good morning, Your Honors.

6           JUDGE NAGUMO: Good morning.

7           MR. SLUZAS: Mr. Alex Sluzas. I am here for Appellant, Dr.  
8 Gregory Jacobs, who will help me out perhaps, if I need it.

9           I'm here today to talk to you about roofing granules.

10          JUDGE NAGUMO: If you have a business card --

11          MR. SLUZAS: Oh, yes, sir. Sure.

12          JUDGE NAGUMO: -- you can provide to the court reporter.

13          THE REPORTER: Thank you.

14          MR. SLUZAS: You're welcome.

15          JUDGE PAK: Counsel, you may be aware you have 20  
16 minutes to argue this case, and the -- your arguments would be transcribed  
17 by a court reporter; and that transcript would become part of the record.

18          MR. SLUZAS: I appreciate that.

19          JUDGE PAK: So you may start any time you wish.

20          MR. SLUZAS: Thank you. Thirty years ago, early in the  
21 spring, my wife and I bought a house and moved in. At the time we bought  
22 it, we negotiated with the sellers to put a new roof on the house. So our roof  
23 is exactly 30 years old this past March.

24          It's a shingled roof, and looking at it I can tell I'm probably  
25 going to need a new roof sometime very soon.

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1           The front of the house faces south, so there the roofing granules  
2 have sort of dislodged, and I can see the -- see black. I can see the patuem  
3 (ph) underneath the roofing granules. However, when I go to the back of the  
4 house, it's a very different story. I have dark streaks running down the roof  
5 shingles, which are otherwise in perfect condition as far as I could tell. And  
6 the dark streaks are a problem because they detract from the appearance of  
7 the roof. The dark streaks are -- have done -- I haven't done a chemical  
8 analysis or microbiological analysis, but I'm almost sure they're algae.

9           And so here is your problem -- a problem I have encountered  
10 myself, and that is how do you produce roofing granules that will continue  
11 to provide an algae-free roof over a long period of time. And that was the  
12 problem the inventors here tried to solve.

13           There are two principal rejections that I'm going to try to  
14 address. One is an obviousness rejection over the combination Skadulis,  
15 which teaches perhaps the basic patents on algae-resistant roofing granules.

16           And it's combined with another patent which teaches a means  
17 for increasing the brightness or the light scattering of roofing granules that  
18 are coated with a coating that's going to, by and large, be white. That's  
19 Joedicke.

20           Skadulis is sort of a pioneer patent in the area and basically  
21 provides -- it's fairly scanty disclosure.

22           There are two examples that the Examiner relies upon, and I  
23 contend the Examiner made a factual error in construing the teachings of  
24 Skadulis.

1           In Skadulis there are -- in each of the two examples there are  
2   two coatings applied to the roofing granules. In one case there is copper  
3   oxide applied to the outer coat -- or included in the outer coating. In the  
4   other case there is a fairly larger amount of copper oxide provided in the  
5   inner coating.

6           And there is titanium dioxide, which of course we all know, it  
7   provides the white color in the outer coating in each of the two examples.

8           In the first example, however, there is some titanium dioxide in  
9   the inner coating, and there is a disclosure of the color of resulting granules.

10          In one case -- the first case -- where the copper oxide is  
11   included in the outer coating, we have a slightly reddish-white granule  
12   according to the disclosure.

13          In the other case we have a bluish granule, because the inventor  
14   decided to include a blue dye along with the titanium dioxide in the outer  
15   coating.

16          From this -- from these two examples and these facts the  
17   Examiner concludes that you can see the inner coating through the outer  
18   coating. And my argument is simply that there's not enough information  
19   here to be able to draw that conclusion. So that's -- that's -- so that is factual  
20   error on the part of the Examiner.

21          Now, the Examiner needs that because in the secondary  
22   reference there is a disclosure of putting -- including a bubble-forming  
23   material like sodium borohydride in dissolving that in the coating material.  
24   And then when the coating is cured, the sodium borohydride or hydrogen

1 peroxide expands and forms the bubbles in the coating. And the bubbles are  
2 just about -- are the right size to scatter light.

3                 And so the invention is using -- forming the bubbles in the  
4 coating so that you require less pigment to scatter light. And this reduces the  
5 amount of titanium dioxide that's required. And, of course, titanium dioxide  
6 is the most expensive pigment you can think of in terms of coloring these  
7 coatings.

8                 There's also -- from my perspective -- a troubling disclosed  
9 suggestion on the part of the inventor here, Joedicke, that you can put  
10 the -- the bubble-forming material in any layer.

11                 Well, so the Examiner from this concludes that if you combine  
12 these two references it's obvious to put the bubble-forming material in the  
13 inner layer of these coatings. And it's my contention that's not true. In  
14 our -- at least in terms of our claims, we require a colorant in the outer layer.

15                 All right. And in Joedicke there's a disclosure that if you  
16 simply form a coating using the binder material. The binder material here is  
17 a combination of halic clay and algicide. So you heat that up to insolubilize  
18 it. And initially, however, the coating is transparent. It does not scatter  
19 light.

20                 However, if you -- once you cure it, it becomes porous, and so  
21 there's a porous network that makes it somewhat translucent.

22                 So Joedicke is making this more -- more light scattered by  
23 putting -- perhaps more regularly sized whites into the coating.

1           So at least in -- from Joedicke's perspective, from his disclosure  
2 you could create a material which has a transparent outer coating, in which  
3 case it makes perfect sense to put light-scattering voids in the inner coating.

4           However, if you have a color in the outer -- outer coating, it just  
5 doesn't make any sense because the inner coating is not visible. And if  
6 anything, if you look at Skadulis' disclosure in Example 3, he puts a lot of  
7 copper oxide into the inner layer. And he puts a little bit of titanium dioxide  
8 in the outer layer. And yet the -- and if you look at our Declaration, you'll  
9 see that conventionally in -- when you have a typical commercial type  
10 roofing granule that's algae-resistant, there's no attempt to make it white,  
11 alright? You just have the copper oxide in there and after you cure it, it  
12 becomes dark brown in color.

13           So, if you don't have any -- any titanium dioxide in the layer of  
14 Skadulis' Example 3, then that inner layer would have a dark brown color. It  
15 has a lot of copper oxide in it. And yet, they've put a little bit of titanium  
16 dioxide in the outer layer, and the appearance is white. So it's not visible.

17           JUDGE KRATZ: But how does that -- when you talk about  
18 that dark brown color in the Declarations --

19           MR. SLUZAS: Yes.

20           JUDGE KRATZ: -- the -- Skadulis suggests that you would get  
21 this reddish white -- reddish type color -- off-white color for the first  
22 example. And they have the copper oxide in there. Why is that? That's an  
23 indication that the Declaration is wrong or is Skadulis wrong, or is there a  
24 reason for that?

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1                   MR. SLUZAS: Well, in Skadulis the outer layer has a lot of  
2 titanium dioxide and a small amount of copper oxide; and that creates -- and  
3 you wind up with a reddish color instead of a dark brown.

4                   In -- as I said, in commercial conventional type algae-resistant  
5 granules, this just goes to the motivation of one who is skilled in the art in  
6 doing this.

7                   The evidence is in commercial type materials you don't put  
8 titanium dioxide in, period. And so, the color is dark brown after it's cured  
9 because copper oxide, sir, reflects the color of the material.

10                  JUDGE KRATZ: Now, the Claim 3 of the -- of this  
11 Application doesn't specify a particular amount of colorant or the copper  
12 oxide?

13                  MR. SLUZAS: That's true.

14                  JUDGE KRATZ: Okay.

15                  JUDGE NAGUMO: Did I understand the Brief proffer to say  
16 that Skadulis doesn't teach -- have this outer layer that does not  
17 have -- forming material on it?

18                  MR. SLUZAS: Skadulis doesn't put --

19                  JUDGE NAGUMO: -- foaming material --

20                  MR. SLUZAS: -- material in either layer.

21                  It's Joedicke, the secondary reference relied upon that he is  
22 using a soluble material like forming the solution. It has to dissolve the  
23 material such as hydrogen peroxide or sodium perborate. And that's where  
24 the voids come from and that's Joedicke and not Skadulis.

1 Skadulis doesn't -- is not concerned about light scattering per  
2 se. They're concerned about algae resistance.

3 JUDGE NAGUMO: And Skadulis says you can put this wet  
4 foaming --

5 MR. SLUZAS: Joedicke.

6 JUDGE NAGUMO: Joedicke?

7 MR. SLUZAS: Yes.

8 JUDGE NAGUMO: I'm sorry.

9 All right. In -- I'm trying to get this absence of the wet foaming  
10 materials in the outer layer.

11 Is that taught by Joedicke?

12 MR. SLUZAS: Joedicke exemplifies wet foaming material  
13 only in outer layers, but there's a statement -- a very broad statement which  
14 the Examiner characterizes as a non-preferred embodiment which I disagree  
15 with, which says you can put the void forming material in any layer.

16 JUDGE KRATZ: I think it's at Column 5, at Line 38-41, and  
17 the reference states gas forming compound that's preferably used in the outer  
18 coating, and then it says, but the "granules may be coated in one or more  
19 coats with any desired amount of coating material and gas forming  
20 compound may be used in any one or more of the coatings."

21 MR. SLUZAS: Your Honor, and my suggestion is that should  
22 read that a person of ordinary skill in the art would read that to mean, taken  
23 in conjunction with Joedicke's teaching, that the outer coating could be  
24 transparent and common sense that there's no point in putting the void

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1 foaming material to increase the light scattering of a layer that's not visible.  
2 That's my suggestion of how that should be read.

3           The Examiner takes a different position -- or actually, the  
4 Examiner agrees with me. The Examiner agrees with me that it would not  
5 make sense. She admits that in her Answer to -- my Brief, that it would not  
6 make sense to put void-forming material into a layer that's not going to be  
7 visible.

8           And that's why she goes to Skadulis and tries to find a teaching  
9 in Skadulis that the inner layer was visible through the outer layer. And, as I  
10 tried to relate initially that that's factual error.

11           If there is a number -- if there are only two examples -- two  
12 experiments, and you have too many independent variables, you have -- the  
13 titanium dioxide can be either layer. You have the copper oxide that can be  
14 any layer. So you're talking about at least four different variables. And you  
15 can't make a determination as to whether or not something's visible based on  
16 just two experiments.

17           Now I'd like to move on to the second rejection I want to talk  
18 about, and that's the flea collar rejection.

19           The Examiner combined Skadulis again about which we've  
20 spoken with a -- with Greenberg. Greenberg discloses an approved pet  
21 collar for killing fleas on dogs and cats.

22           And Greenberg tries to solve the problem of -- that occurs when  
23 a conventional phosphate flea killer insecticide is used in these materials. So  
24 it goes from a chlorinated compound to a brominated compound.

1           The problem is that when he does that, the vapor pressure drops  
2 by two orders of magnitude. So, his issue is how do you get that  
3 additional -- how do you increase the delivery of the insecticide from this  
4 essentially polyvinyl fluoride plastic material. And the way he does that is  
5 he includes a material that forms bubbles when you increase -- when you  
6 cure the plastisol, the PVC plastisol.

7           However, if you look at what he's actually done -- and you can  
8 see this in his micrographs or his photograph of the flea collars is he's  
9 increased the surface area of the flea collar by the -- the material comes out  
10 and the bubble-forming material forms bubbles and forms an irregular  
11 surface -- a porous surface.

12           There's no indication in Greenberg that the porosity -- the  
13 interior porosity of the flea collar material, has been increased. And they  
14 have been with this known disclosure on a factual basis in the reference.

15           So, I have two points here. One is that it's certainly not the  
16 same art, because we're trying to solve the problem of getting rid of those  
17 dark streaks that appear on my roof 30 years after the roof has been applied.  
18 And we're not trying to solve my cat's fleas problem.

19           JUDGE NAGUMO: Isn't that just a matter of kinetic stuff?  
20 We've got the -- in both cases you have polymeric matrix and in both cases  
21 you're trying to release -- you want to release something that is going to  
22 deter the test?

23           MR. SLUZAS: And my second point is it's not reasonably  
24 pertinent. If you -- if -- again, I would suggest that the question about what  
25 is reasonably pertinent needs -- is a factual issue, and we need to look at the

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1 disclosures. We need to see what the Inventors of our Invention were trying  
2 to do and what Greenberg was trying to do.

3 JUDGE NAGUMO: Well, that's why I asked about the  
4 kinetics. Isn't it just a matter of time and why is the -- granted -- a few  
5 weeks is very different from 30 years?

6 MR. SLUZAS: Yes.

7 JUDGE NAGUMO: Still, chemists who are used to dealing  
8 with much larger orders of magnitude in terms of the rates of release.

9 So, why is a teaching of providing for a way of increasing the  
10 release of material in one situation so different from the other? Why is it  
11 really not art that someone interested in release from a polymeric matrix?  
12 Why wouldn't they look at that?

13 MR. SLUZAS: I think you've taken it to too high a level of an  
14 extraction. Maybe -- maybe if you -- and you have to look at who is actually  
15 doing the inventing, as I believe it's a factual issue. I think the Examiner's  
16 error here is in looking at it too -- extracting the problem.

17 I mean, it's not -- it's certainly not the problem that the inventor  
18 was trying to solve, right? We already know it's -- first of all, the  
19 mechanism is not quite the same thing.

20 In one case the -- the insecticide is simply vaporizing out of the  
21 polymeric matrix, all right. So it has a vapor pressure and it's escaping into  
22 the atmosphere.

23 In the other case the -- so far as we know -- and this, of course,  
24 is part of the Disclosure, but as far as we know, the heavy metal salt is  
25 sparing soluble in rain water, all right. So it's leached -- it is leaching out

1 over a long period of time from the granules -- from the coating of the  
2 granules.

3 So, I would think if you look at the kinetics of the two, they  
4 would be extremely different. You're talking about some very different  
5 chemistry and you're talking about different physical processes.

6 So, in the abstract you can -- you can abstract it as far as you  
7 want and you can say this is reasonably pertinent, and drug release from  
8 capsules is pertinent and expand the universe in that way of what's  
9 reasonably pertinent. But I would suggest it's error to do so, and that in  
10 order to determine what's reasonably pertinent, it should not be the  
11 Examiner's decision based on her understanding. It should be something  
12 that is established by the facts. And the facts are established by art that's  
13 cited.

14 So, if -- I mean, if you're -- if, as you suggest, if you're  
15 reasonably certain it would occur to you, all right, for you, all right, to look  
16 into this other art, then the question is where is the evidence that a person  
17 already skilled in the granule art would look at that level of abstraction and  
18 decide all this additional art in all these unrelated fields -- And you can start  
19 with this --

20 JUDGE NAGUMO: Greenberg does provide for this in their --

21 MR. SLUZAS: Well, Greenberg -- Greenberg discloses that  
22 there are pores in the polymer matrix. It's not -- it's not clear to me from  
23 reading Greenberg that there aren't pores in a polyvinyl fluoride polymer  
24 matrix, and it's not clear where the pores come from but there are pores on  
25 the surface. And that's what Greenberg emphasizes in --

1                   JUDGE NAGUMO: So that would be your main point; isn't  
2 it -- that Greenberg doesn't teach the void forming --

3                   MR. SLUZAS: Well, there's two points --

4                   JUDGE NAGUMO: -- that's required by the client?

5                   MR. SLUZAS: Well, two points -- it's not an analogous  
6 because, number one, it's not reasonably pertinent because there's  
7 no -- there's no factual support for the Examiner's conclusion that it's  
8 reasonably pertinent. I think reasonably pertinent is conclusion of law and it  
9 has to be backed up by facts, number one.

10                  Number two, yes, if -- you put the two together and you do not  
11 wind up with our invention because if you put the two together, you wind up  
12 with something that forms pores on the surface of the inner layer.

13                  JUDGE KRATZ: Speaking to that one argument you made, I  
14 just wanted to point out though that in Column 2 of the Skadulis reference at  
15 Lines 56 through 70 they talk about the acidic pH during certain light rains  
16 resolving some of the algicide moving out of the shingles as opposed to  
17 moisture conditions where it doesn't seem to be released from the shingles at  
18 least in terms of it without out the additional, you know, porosity-improving  
19 agent that you use.

20                  MR. SLUZAS: The acid rain is a friend in this case.

21                  JUDGE KRATZ: Right.

22                  MR. SLUZAS: And, again, it speaks to being able to tailor  
23 these granules to specific geographical and climatic conditions. It may -- it  
24 may need less, you may need to formulate it differently in the northeast than  
25 you do -- when you're downwind of a coal burning power plant.

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1                   So, returning to the Greenberg reference, just very briefly, I  
2 think, on the second point I just want to emphasize that if you put the two  
3 together, you still do not wind up with our claimed invention, because the  
4 porosity is on the surface. At least that's what's important in Greenberg.

5                   There may be -- there may be porosity in -- in the vinyl matrix,  
6 but the reality is -- and this is taught by Joedicke -- that these halic clay  
7 silicate matrices are porous. And that's shown by the fact that becomes  
8 translucent rather than remain transparent when it's cured without any  
9 pigment coat in the coating.

10                  And so you start out Skadulis, as it has porous coatings and  
11 that's -- we're making them more porous in a specific way for a specific  
12 purpose.

13                  And I think I'm finished.

14                  Thank you for your attention.

15                  JUDGE NAGUMO: Thank you for coming.

16                  Whereupon, at approximately 10:37 a.m. the proceedings were  
17 concluded.